A Cut-off Value for Gestational Week at Birth for Better Perinatal Outcomes in Early- and Late-Onset Fetal Growth Restriction

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Fetal growth restriction (FGR) is a serious obstetric condition requiring great caution to avoid fetal morbidity and mortality. Incidence of fetal death is around 1.5% below the 10th percentile, and the risk of fetal death increases to 2.5% below the 5th percentile. Management of these patients is complicated due to heterogeneous and different etiological factors in early-onset and late-onset FGR patients.

In this study, we retrospectively evaluated 83 singleton pregnancies diagnosed as FGR and confirmed postnatally. Patients were evaluated in terms of obstetrical outcomes including APGAR scores and umbilical cord blood gas pH and base deficit. Patients were classified as early and late onset based on gestational week at diagnosis with a cut-off of 34 gestational weeks. We compared expectant management and immediate delivery in both groups. The management modality was determined according to international guidelines and initial examination of the patient at our clinic.

Early- and late-onset FGRs were detected in 22 (26.5%) and 61 (73.5%) of the cases, respectively. Expectant management significantly improved birth weight and APGAR scores at the 1st, 5th and 10th minute in early-onset FGR cases (p = 0.001, p = 0.019, p = 0.002, and p = 0.001, respectively). Similar analysis revealed no significant improvements for late-onset FGR (p = 0.151, p = 0.727, p = 0.951, and p = 0.0477, respectively). Umbilical cord blood gas pH and base excess were found to be similar between management modalities in both the early- and late-onset group (p = 0.186 and p = 0.456 for blood gas pH, and p = 0.303 and p = 1.000 for base excess, respectively). ROC curve analysis was performed for the early-onset group because expectant management was found to be correlated with better APGAR scores. According to ROC curve analysis, gestational week 33.5 was found to be the threshold for better APGAR scores for the 1st, 5th and 10th minute. Percentiles of 4.5, 2.5, and 4.5 were cut-off values for APGAR scores at the 1st, 5th, and 10th minute, respectively.

Several studies have been carried out to define the early- and late-onset FGRs and predict the ideal gestational week for delivery to improve neonatal outcomes in recent years. Many parameters including ultrasonographic Doppler studies are widely used to determine birth week. In this study, we tried to compare the management modalities in early- and late-onset FGR cases. Expectant management of early-onset FGR cases was found to be beneficial in our study in terms of APGAR scores.

Expectant management must be the first choice to improve APGAR scores in early-onset FGR cases, and gestational week 33.5 must be considered as a threshold for delivery. Immediate delivery might be the choice in late-onset FGR in necessary cases. However, etiology-based management and perinatal surveillance might also be considered in order to improve prematurity-related neonatal complications.